

Fishes of the Vermelho River, São Lourenço River basin, Mato Grosso State, Brazil

Reinaldo José de Castro* and Patrícia Cristina Vizzotto

1 Universidade Federal de Mato Grosso - Campus Universitário de Rondonópolis, Departamento de Biologia, Rodovia MT 270, Km 6. CEP 78735-901. Rondonópolis, MT, Brazil.

* Corresponding author. E-mail: reinaldocastro@ufmt.br

ABSTRACT: We present a list of ichthyofauna of the Vermelho River, a tributary of the São Lourenço River, Paraguay basin. Fishes were caught with seine nets measuring approximately 10 m in total length and with a mesh size of 0.5 cm. We list 38 species, representing five orders, 11 families, eight sub-families and 28 genera. Characiformes were represented by 23 species, Siluriformes by 11, Perciformes by two, and Gymnotiformes and Pleuronectiformes by a single species each.

INTRODUCTION

The Pantanal Mato-grossense is a vast sedimentary floodplain located in the midwest region of Brazil (Britski, *et al.*, 2007). In this floodplain, tributaries of the Paraguay River, which drains the system, are environments that fluctuate seasonally and determine the seasonal changes in food and movement of fish that occupy the lower parts of the floodplain. The Vermelho River starts at Poxoréu city (Mato Grosso State) and it is the main left margin tributary of the São Lourenço River which in turn flows into the northeastern edge of the Pantanal. In recent decades this river has suffered from the constant removal of riparian vegetation causing silting and gradual decrease of the flow of its waters. The Vermelho River is located near the city of Rondonópolis (Mato Grosso State), but it also drains other municipalities.

The number of valid species of fishes in general is over 32,000 (Eschmeyer, 2012). According to Reis *et al.*

(2003) 4,475 valid species of Neotropical freshwater fishes have been recorded. The orders Characiformes and Siluriformes are the most dominant (Britski, 1972). This author emphasizes that the family Characidae is the most representative of freshwater fish in Brazil. For the Pantanal Mato-grossense, Brazil, Britski *et al.* (2007) list 269 fish species distributed in 36 families. In this case, the Characiformes is dominant with 110 species, being followed by Siluriformes with 105 species. Despite all this information, the ichthyofauna of the Vermelho River is poorly known. Thus, the main objective of this paper is to present information about the fish fauna of this river.

MATERIALS AND METHODS

Samplings were carried out monthly from November 2009 to May 2011 in four sites (Junção, Jurigue, Arareau and Grupo de Artilharia de Campanha - GAC) along the Vermelho River (Figure 1). We determined a

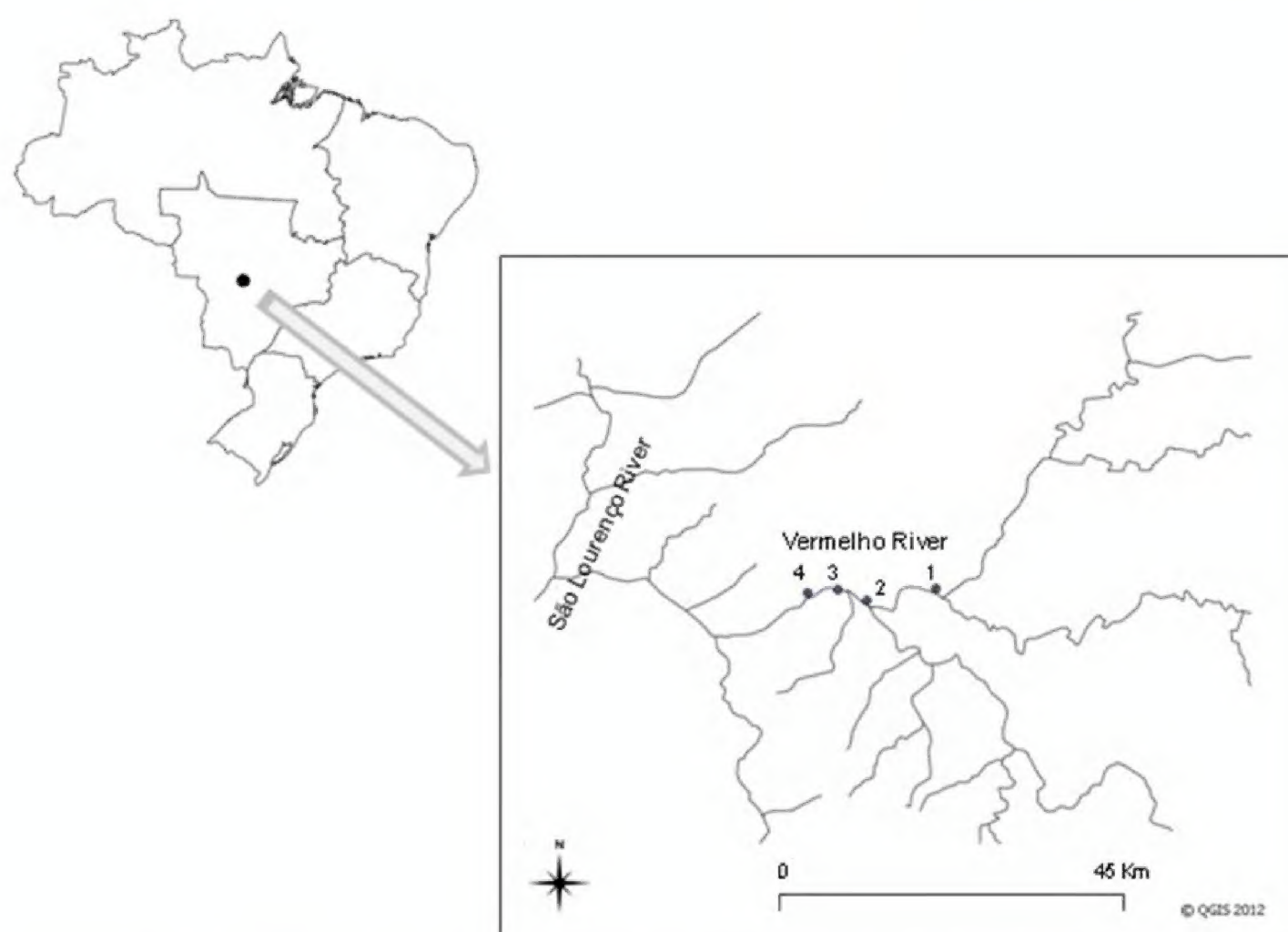


FIGURE 1. Study area in Vermelho River and adjacent regions. Sampling stations (1) Junção, (2) Jurigue, (3) Arareau and (4) GAC.

stretch of Vermelho River between 16°25’/16°30’S and 54°40’20’’/54°34’50’’W (Figure 1). The predominant climate in the region is **Aw** (Köppen Climate Classification System) which is characterized by warm wet summers and dry winters with mean annual temperatures exceeding 25.0°C. Precipitation varies between less than 60 mm to 1,566 mm in the region (Orioli *et al.*, 1982).

In littoral areas of river, fish species were collected with 10 m long seine nets (0.5 cm mesh size) during the day. The specimens were preserved in formalin (10%). The sampling work was standardized to a constant time and number of drags employed (two) at each point. Fishes were collected under ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade) permits (21546-1/2009).

In the laboratory, fishes were identified up to the lowest possible taxonomic level. Identification was initially performed using the identification keys of Britski *et al.* (2007) and later confirmed by experts.

Voucher are deposited in the fish collections of the Laboratório de Zoologia (LZCUR) of the Universidade Federal de Mato Grosso – campus Rondonópolis and Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura of the Universidade Estadual de Maringá (NUP).

RESULTS AND DISCUSSION

In the Vermelho River 7,653 specimens of fishes were collected, distributed in 38 species, five orders, 11 families and 28 genera. Characiformes are represented by 23 species (60.53%), Siluriformes by 11 (28.95%), Perciformes by two (5.26%), and Gymnotiformes and Pleuronectiformes by a single species each, corresponding to 2.63%. (Table 1)

TABLE 1. Fish species from the Vermelho River.

TAXON	VOUCHER
CHARACIFORMES	
Anostomidae	
<i>Leporinus cf. friderici</i> (Bloch, 1794)	LZCUR 108
Characidae	
Aphyocharacinae	
<i>Aphyocarax dentatus</i> Eigenmann and Kennedy, 1903	LZCUR 109
Characinae	
<i>Phenacogaster jancupa</i> Malabarba and Lucena, 1995	LZCUR 117
<i>Roeboides prognathus</i> Boulenger, 1895	NUP 12235
Cheirodontinae	
<i>Odontostilbe paraguayensis</i> Eigenmann and Kennedy, 1903	LZCUR 110
<i>Odontostilbe pequira</i> (Steindachner, 1882)	NUP 12225
Stevardiinae	
<i>Bryconamericus exodon</i> (Eigenmann, 1907)	NUP 12233
Incertae sedis	
<i>Astyanax</i> sp.	LZCUR 111
<i>Astyanax marionae</i> Eigenmann, 1911	NUP 12218
<i>Astyanax asuncionensis</i> Géry, 1972	LZCUR 112
<i>Astyanax abramis</i> (Jenyns, 1842)	NUP 12236
<i>Bryconops melanurus</i> (Bloch, 1794)	LZCUR 113
<i>Engraulisoma taeniatum</i> (Castro, 1981)	LZCUR 114
<i>Jupiaba acanthogaster</i> (Eigenmann, 1911)	LZCUR 115
<i>Moenkhausia bonita</i> Benine, Castro and Sabino, 2004	NUP 12230
<i>Moenkhausia intermedia</i> Eigenmann, 1908	LZCUR 116

TAXON	VOUCHER
<i>Moenkhausia oligoleps</i> (Günther, 1864)	NUP 12227
Crenuchidae	
<i>Characidium</i> aff. <i>zebra</i> Eigenmann, 1909	LZCUR 118
Curimatidae	
<i>Steindachnerina nigrotaenia</i> (Boulenger, 1902)	LZCUR 119
Gasteropelecidae	
<i>Thoracocharax stellatus</i> (Kner, 1858)	LZCUR 120
Parodontidae	
<i>Apareiodon</i> sp.	NUP 12214
<i>Apareiodon affinis</i> (Steindachner, 1879)	LZCUR 121
<i>Parodon nasus</i> Kner, 1859	NUP 12224
GYMNOTIFORMES	
<i>Gymnotus</i> sp.	LZCUR 122
PERCIFORMES	
Cichlidae	
<i>Crenicichla semifasciata</i> (Heckel, 1840)	LZCUR 123
<i>Crenicichla vittata</i> Heckel, 1840	LZCUR 124
PLEURONECTIFORMES	
Achiridae	
<i>Catathyridium jenynsii</i> (Günther, 1862)	LZCUR 125
SILURIFORMES	
Callichthyidae	
<i>Corydoras areio</i> Knaack, 2000	LZCUR 126
Loricariidae	
Loricariinae	
<i>Loricaria</i> sp.	LZCUR 127
<i>Loricariichthyes platymetopon</i> Isbrücker and Nijssen, 1979	LZCUR 128
<i>Sturiosoma barbatum</i> (Kner, 1853)	NUP 12210
<i>Spatuloricaria evansii</i> (Boulenger, 1892)	LZCUR 129
Hypostominae	
<i>Hypostomus latirostris</i> (Regan, 1904)	LZCUR 130
Hypoptopomatinae	
<i>Otocinclus vittatus</i> Regan, 1904	NUP 12207
Pimelodidae	
<i>Pimelodella gracilis</i> (Valenciennes, 1804)	NUP 12220
<i>Pimelodella notomelas</i> Eigenmann, 1917	LZCUR 131
<i>Pimelodus ornatus</i> Kner, 1858	NUP 12209
<i>Pimelodella</i> sp.	LZCUR 132

The most frequent species were *Odontostilbe paraguayensis* (Steindachner, 1882) (63.97%), *Aphyocarax dentatus* Eigenmann and Kennedy, 1903 (19.4%), *Steindachnerina nigrotaenia* (Boulenger, 1902) and *Engraulisoma taeniatum* (Castro, 1981), with 4.43% and 4.39%, respectively, of the total of species caught in the stretch.

Twelve species occurred in all sampling sites: *Aphyocarax dentatus* Eigenmann and Kennedy, 1903, *Odontostilbe paraguayensis* Eigenmann and Kennedy, 1903, *Odontostilbe pequira* (Steindachner, 1882), *Characidium* aff. *zebra* Eigenmann, 1909, *Astyanax marionae* Eigenmann, 1911, *Astyanax asuncionensis* Géry, 1972, *Bryconamericus exodon* (Eigenmann, 1907), *Engraulisoma taeniatum* (Castro, 1981), *Steindachnerina nigrotaenia* (Boulenger, 1902), *Thoracocharax stellatus* (Kner, 1858), *Apareiodon affinis* (Steindachner, 1879) and *Pimelodella* sp.



The results obtained in this study, with a total of 38 fish species captured, are very modest when compared to surveys presented by Britski *et al.* (2007), who registered 269 fish species for the Pantanal region, suggesting the need for an increased sampling effort and more detailed taxonomic studies in rivers that form the Pantanal.

However, our results are useful for studies about the distribution of ichthyofauna in tributaries of the Paraguay basin. Future studies with other capture methods must be employed to obtain additional other species to the presented list.

ACKNOWLEDGMENTS: We thank the FAPEMAT (737426/2008) for financial support and Polícia Ambiental of the Mato Grosso State for field support, which made this study possible. We especially thank Dra. Carla Simone Pavanelli for identifying the fish species and Dra. Andréa Bialetzki (Nupélia/UEM) for critically revising the manuscript. We are also grateful to Debora Carvalho David, João Fernando Copetti Bohrer and Scheilla Thais Cavalheiro for helping us in the sampling period.

LITERATURE CITED

- Britski H.A. 1972. Peixes de água doce de Estado de São Paulo: Sistemática. p. 83-108. In *Comissão Interestadual da Bacia Paraná-Uruguaí. Poluição e Piscicultura*, São Paulo: Faculdade de Saúde Pública da USP e Instituto de Pesca - CPRN-AS..
- Britski H.A., K.Z. Silimon and B.S. Lopes. 2007. *Peixes do Pantanal, Manual de identificação*. Brasília: Embrapa. 230 p.
- Eschmeyer, W.N. (ed). *Catalog of Fishes. California Academy of Sciences*. Eletronic database accessible at <http://research.calacademy.org/research/ichthyology/catalog/fichcatmain.asp>. Captured on 4 December 2012.
- Orioli, A.L., Z.P. Amaral Filho and A.B. Oliveira. 1982. Pedologia. Levantamento exploratório de solos. p 225-328. In *BRASIL. Ministério das Minas e Energia. Departamento Nacional de Produção Mineral. Projeto Radambrasil, Folha SE. 21 Corumbá. Levantamento de Recursos Naturais*, 27. Rio de Janeiro.
- Reis, R.E., S.O. Kullander and C.J. Ferraris Jr. 2003. *Check list of the freshwater fishes of South Central and America*. Porto Alegre: Edipurcs. 742 p.

RECEIVED: August 2012

ACCEPTED: December 2012

PUBLISHED ONLINE: February 2013

EDITORIAL RESPONSIBILITY: Tiago P. Carvalho